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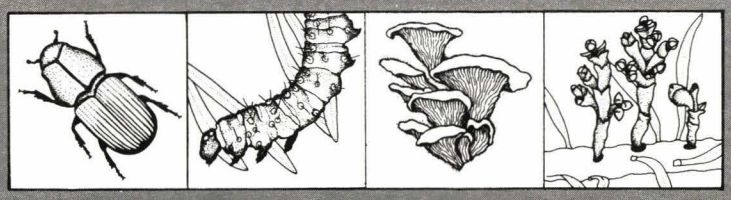

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EVALUATION OF PROPOSED DWARF MISTLETOE TREATMENTS FOR FISCAL YEARS 1981-1985, FLATHEAD INDIAN RESERVATION, MONTANA

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SUMMARY

Dwarf mistletoe infection in lodgepole pine, Douglas-fir, and western larch is spotty in distribution and ranges from light to heavy in intensity on the Flathead Indian Reservation. Control by logging of merchantable trees and sanitation thinning of residuals will reduce infection and significantly increase volume yields in the future. Control is recommended.

INTRODUCTION

Five-year dwarf mistletoe control programs were initiated by the Flathead Agency in 1971 and 1976 to suppress mistletoe and return infected stands to full productivity. The agency is now in a position to increase the annual acreage treated and has submitted a proposal to treat 20,000 acres over the next 5 years (table 1).

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Table 1.—Proposed treatment schedule for mistletoe control on Flathead Indian Reservation

Project Area (unit)	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	Total
	acres					
St. Marys	500	113				613
Stevens	400	400	400	400	416	2,016
Mill Creek	225	750	750	750	525	3,000
Finley	141	500	500	500		1,641
Garden Creek	1,500	1,400	1,500	550		4,950
Letzen	200	206	200	263		869
Dog Lake	565	300	300	300		1,465
Sullivan			350	850	803	2,003
St. Marys West	269	200				469
Big Draw	200	131				331
Charity Peak					575	575
Morrison Gulch					268	268
St. Marys East					400	400
Meadow				200	400	600
Gold					200	200
Irvine-West				187	413	600
Total	4,000	4,000	4,000	4,000	4,000	20,000

This evaluation is based on Dooling's visit to the Finley and Charity Peak units on July 2, and knowledge gained on previous control units in similar areas.

PROPOSED TREATMENT METHODS

Treatment will consist of cutting all infected nonmerchantable trees remaining after logging. If the stands contain no merchantable trees, treatment will be sanitation thinning or site rehabilitation.

TECHNICAL INFORMATION

The Reservation contains 338,000 acres of commercial forest land, of which about 217,000 acres (64 percent) support Douglas-fir, western larch, and lodgepole pine timber types. Dwarf mistletoes (*Arceuthobium douglasii* on Douglas-fir, *A. laricis* on western larch, and *A. americanum* on lodgepole pine) are the most serious cause of disease. Permanent growth plot data show that one of every four host trees is infected with dwarf mistletoe.

The major effect of mistletoe infection is growth reduction. Some mortality occurs especially when infected trees are attacked by insects. Heavily infected trees produce smaller cone crops and seeds of lower viability than healthy trees. Wood quality and log grades are adversely affected by mistletoe stem infection.

Growth impact of mistletoes in cutover Douglas-fir and western larch stands is significant: 1,900 MBF per year in the 110 M acres (17.3 BF/acre/year) where many of the heavily infected trees have already been harvested. Annual losses probably exceed this figure for uncut Douglas-fir and western larch and all lodgepole pine stands. Our conservative estimate of total growth loss on the Reservation exceeds 3 MMBF per year. Based on 1979 average stumpage prices on the Reservation ($150/MBF), losses exceed $500,000 per year.

DISCUSSION

In the more heavily infected areas, all susceptible trees will be removed. Seed trees or shelterwood should be disease free, but some lightly infected trees may have to be left. This is acceptable if infected trees are removed before regeneration is 3 feet tall or within 10 years, whichever occurs first. This grace period is possible because seedlings present small targets for mistletoe seed to hit and the likelihood of infection is small. Heavily infected trees should not be retained for seed trees because they produce fewer and less viable seeds than healthy trees. Trees with visible infections are easy to find, but many may have latent (invisible) infections. These infections usually become evident 3 to 5 years after thinning. If a few lightly infected trees (latent or visible) have to be left, little impact will result if these trees are removed within 15 to 20 years.

COST ANALYSIS

Average cost of mistletoe control work on the Reservation is estimated at $62.50/acre. This is based on:

1. A Flathead Indian contractor's ability to treat an average acre at $40.62.*

2. Contract supervision and quality control through tribal technical/administrative support at $12.50/acre.

* Average cost/acre for 2,100 acres contracted 10/1/79 to present is $33.85. Allowing a 20 percent increase over the next 5 years, average cost will be $40.62/acre.

3. Bureau of Indian Affairs overhead for administration of Buy-Indian contracts, planning, developing, and layout of individual projects at $9.38/acre.

IMPACT OF TREATMENT ON OTHER RESOURCES

Because treatment will consist of cutting infected nonmerchantable trees, sanitation thinning, or site rehabilitation, there will be no significant impact on other resources.

RECOMMENDATION

Reduction of dwarf mistletoe impact through normal silvicultural practices is biologically sound but costs are usually higher when mistletoes must be considered, and additional funding to cover these costs is often required. The proposed treatment is sound, and will reduce losses. We recommend the use of insect and disease funds to meet these additional costs.